WHAT WE CLAIM IS:

1. An image-formation optical system, characterized by comprising, in order from an object side thereof, an aperture stop, a first positive meniscus lens that is convex on an image side thereof, a second negative lens that is of double-concave shape and a third positive lens, three lenses in all, wherein there are a total of three lens elements.

2. An imaging system, characterized by comprising an image-formation optical system comprising, in order from an object side thereof, an aperture stop, a first positive meniscus lens that is convex on an image side thereof, a second negative lens that is of double-concave shape and a third positive lens, three lenses in all, wherein there are a total of three lens elements.

3. An imaging system as recited in claim 2, characterized in that an image pickup device is located on an image side of an arrangement comprising said three lenses.

4. An imaging system as recited in claim 2, characterized in that the three lenses are each defined by a single lens, and two air lenses defined by the three lenses are interposed between differently shaped two refracting surfaces.

5. An imaging system as recited in claim 4, characterized in that said two air lenses are interposed between differently shaped two aspheric surfaces.

6. An imaging system, characterized by comprising an image-formation optical system comprising, in order from an object side thereof, an aperture stop, and a first positive lens defined by a positive single lens wherein an absolute value of an axial radius of curvature of an image side-surface thereof is smaller than an absolute value of an axial radius of curvature of an object side-surface thereof, a second negative lens defined by a negative single lens wherein an absolute value of an axial radius of curvature of an image side-surface thereof is smaller than an absolute value of an axial radius of curvature of an object side-surface thereof and a third positive lens defined by a positive single lens, three single lenses in all, and an image pickup device located on an image side of the image-formation optical system, wherein there are a total of three lens elements, with satisfaction of the following conditions:

$$0.30<f_1/Ih<0.90 \quad \ldots (10)$$

$$-0.75<f_2/Ih<-0.1 \quad \ldots (3)$$

$$0.70<f_3/Ih<2.00 \quad \ldots (11)$$

where f_1 is a focal length of the first positive lens, f_2 is a focal length of the second negative lens, f_3 is a focal length of the third positive lens, and Ih is a maximum image height.

7. An imaging system, characterized by comprising an image-formation optical system comprising, in order from an object side thereof, an aperture stop, and a first

positive lens defined by a positive single lens wherein an absolute value of an axial radius of curvature of an image side-surface thereof is smaller than an absolute value of an axial radius of curvature of an object side-surface thereof, a second negative lens defined by a negative single lens wherein an absolute value of an axial radius of curvature of an image side-surface thereof is smaller than an absolute value of an axial radius of curvature of an object side-surface thereof and a third positive lens defined by a positive single lens, three single lenses in all, and an image pickup device located on an image side of the image-formation optical system, wherein the following conditions are satisfied:

$$0.1<f_1/f<0.46 \quad \text{... (9-3)}$$

$$-0.75<f_2/f<-0.29 \quad \text{... (12)}$$

$$0.40<f_3/f<0.85 \quad \text{... (13)}$$

where f_1 is a focal length of the first positive lens, f_2 is a focal length of the second negative lens, f_3 is a focal length of the third positive lens, and f is a focal length of the image-formation optical system.

(8) An imaging system as recited in any one of claims 2, 6 and 7, characterized by satisfying the following condition:

$$-0.5<(r_{2f}+r_{2r})/(r_{2f}-r_{2r})<0.98 \quad \text{... (1)}$$

where r_{2f} is an axial radius of curvature of the object side-surface of the second negative lens, and r_{2r} is an axial radius of curvature of the image side-surface of the

second negative lens.

9. An imaging system as recited in claim 2 or 7, characterized by satisfying the following condition:

$$0.01<r_{1r}/r_{2f}<0.75 \quad \ldots (2)$$

where r_{1r} is an axial radius of curvature of the image side-surface of the first positive lens, and r_{2f} is an axial radius of curvature of the object side-surface of the second negative lens.

10. An imaging system as recited in any one of claims 2, 6 and 7, characterized by satisfying the following condition:

$$-0.75<f_2/Ih<-0.1 \quad \ldots (3)$$

where f_2 is the focal length of the second negative lens, and Ih is the maximum image height.

11. An imaging system as recited in any one of claims 2, 6 and 7, characterized by satisfying the following condition:

$$-5.0<f_{2-3}/f<-0.1 \quad \ldots (4)$$

where f_{2-3} is a composite focal length of the second negative lens and the third positive lens, and f is the focal length of the image-formation optical system.

12. An imaging system as recited in any one of claims 2, 6 and 7, characterized by satisfying the following condition:

$$-0.8<f_2/f_3<-0.1 \quad \ldots (5)$$

where f_2 is the focal length of the second negative lens, and f_3 is the focal length of the third positive lens.

13. An imaging system as recited in any one of claims 2, 6 and 7, characterized in that the object side-surface of the second negative lens is defined by an aspheric surface, with satisfaction of the following condition:

$$0.01<|(r_{2fs}+r_{2fa})/(r_{2fs}-r_{2fa})-1|<100 \quad \ldots (6)$$

where r_{2fs} is an axial radius of curvature of the object side-surface of the second negative lens, and r_{2fa} is a radius of curvature of the object side-surface of the second negative lens with the aspheric surface taken into consideration, upon a difference between r_{2fs} and said radius of curvature reaching a maximum.

14. An imaging system as recited in any one of claims 2, 6 and 7, characterized in that the image side-surface of the second negative lens is defined by an aspheric surface, with satisfaction of the following condition:

$$0.01<|(r_{2rs}+r_{2ra})/(r_{2rs}-r_{2ra})-1|<100 \quad \ldots (7)$$

where r_{2rs} is an axial radius of curvature of the image side-surface of the second negative lens, and r_{2ra} is a radius of curvature of the image side-surface of the second negative lens with the aspheric surface taken into consideration, upon a difference between r_{2fs} and said radius of curvature reaching a maximum.

15. An imaging system as recited in any one of claims 2, 6 and 7, characterized by satisfying the following condition:

$$10^\circ < \alpha < 40^\circ \quad \ldots (8)$$

where α is an angle of incidence of a chief ray on an image plane at the maximum image height.

16. An imaging system as recited in claim 2 or 6, characterized by satisfying the following condition:

$$0.1 < f_1/f < 1.2 \quad \ldots (9)$$

where f_1 is the focal length of the first positive lens, and f is the focal length of the image-formation optical system.

17. An imaging system, characterized by comprising an image-formation optical system that comprises, in order from an object side thereof, an aperture stop, and a first positive meniscus lens that is convex on an image side thereof, a second negative lens and a third positive lens, three lenses in all, where there are a total of three lens elements, with satisfaction of the following condition:

$$-0.75 < f_2/Ih < -0.1 \quad \ldots (3)$$

where f_2 is a focal length of the second negative lens, and Ih is a maximum image height.

18. An image-formation optical system, characterized by comprising, in order from an object side thereof, an aperture stop, a first positive lens, a second negative lens and a third positive lens, wherein there are a total of three lens elements, with satisfaction of the following condition:

$$1.5 < d/(f \cdot \tan\theta) < 3.0 \quad \ldots (21)$$

where d is a distance of the image-formation optical system as measured from an aperture stop plane to an image plane on an optical axis, θ is a maximum angle of incidence of the image-formation optical system, and f is a focal length of the image-formation optical system.

19. An image-formation optical system, characterized by comprising, in order from an object side thereof, an aperture stop, a first meniscus positive lens that is convex on an image side thereof, a second negative lens and a third positive lens, wherein there are a total of three lens elements, with satisfaction of the following condition:

$$-5.0<f_{2\text{-}3}/f<-0.5 \quad \ldots (22)$$

where $f_{2\text{-}3}$ is a composite focal length of the second negative lens and the third positive lens, and f is a focal length of the image-formation optical system.

20. An imaging system, characterized by comprising an image-formation optical system comprising, in order from an object side thereof, an aperture stop, a first positive lens that is convex on an image side thereof, a second negative lens that is concave on an image side thereof and a third positive lens, and an image pickup device located on an image side of the image-formation optical system, wherein said image-formation optical system comprises a total of three lens elements, and said aperture stop has an aperture of fixed shape through which an optical axis of the image-formation optical system

passes, and a rim surface of the aperture is inclined down at an angle of inclination greater than an angle of incidence of a farthest off-axis light beam in such a way as to come closer to the optical axis on an image plane side thereof.

21. An imaging system, characterized by comprising an image-formation optical system comprising, in order from an object side thereof, an aperture stop, a first positive lens that is convex on an image side thereof, a second negative lens that is concave on an image side thereof and a third positive lens, and an image pickup device located on an image side of the image-formation optical system, wherein said image-formation optical system comprises a total of three lens elements, and there is provided a lens barrel for holding said image-formation optical system and said image pickup device, wherein said lens barrel is integrally molded of the same resin material of which said aperture stop is formed.

22. An imaging system, characterized by comprising an image-formation optical system comprising, in order from an object side thereof, an aperture stop, a first positive lens that is convex on an image side thereof, a second negative lens that is concave on an image side thereof and a third positive lens, and an image pickup device located on an image side of the image-formation optical system, wherein said image-formation optical system comprises a total of three lens elements, and there

is provided a lens barrel for holding said image-formation optical system, wherein a rim of each of at least the first positive lens and the third positive lens is inclined down in such a way as to come closer to an optical axis of the image-formation optical system on an object side thereof, and an inclined rim is in engagement with said lens barrel.

23. An imaging system, characterized by comprising an image-formation optical system comprising, in order from an object side thereof, an aperture stop, a first positive lens that is convex on an image side thereof, a second negative lens that is concave on an image side thereof and a third positive lens, and an image pickup device located on an image side of the image-formation optical system, wherein said image-formation optical system comprises a total of three lens elements, and there is provided a lens barrel for holding said image-formation optical system, wherein as viewed from an entrance side of the image-formation optical system, said first positive lens looks as a circle and, as viewed from the entrance side, said third positive lens is in such a shape that a length of a direction corresponding to a short-side direction of an effective image pickup area of the image pickup device is shorter than a length of a direction corresponding to a long-side direction of the image pickup area.

24. An image-formation optical system,

characterized by comprising, in order from an object side thereof, an aperture stop, a first positive lens, a second negative lens and a third positive lens, wherein at least the first positive lens comprises an aspheric surface with satisfaction of the following condition, and there are a total of three lens elements:

$$-5.0<f_{2-3}/f<-0.5 \quad \ldots (22)$$

where f_{2-3} is a composite focal length of the second negative lens and the third positive lens, and f is a focal length of the image-formation optical system.

25. An image-formation optical system, characterized by comprising, in order from an object side thereof, an aperture stop, a first positive lens, a second negative lens and a third positive lens, wherein at least the second negative lens comprises an aspheric surface with satisfaction of the following condition, and there are a total of three lens elements:

$$-5.0<f_{2-3}/f<-0.5 \quad \ldots (22)$$

where f_{2-3} is a composite focal length of the second negative lens and the third positive lens, and f is a focal length of the image-formation optical system.

26. An image-formation optical system, characterized by comprising, in order from an object side thereof, an aperture stop, a first positive meniscus lens that is convex on an image side thereof, a second negative lens and a third positive lens, wherein there are a total of three lens elements, with satisfaction of the following

condition:

$$0.2<f_1/f_3<0.58 \quad \ldots (23\text{-}1)$$

where f_1 is a focal length of the first positive lens, and f_3 is a focal length of the third positive lens.

27. An image-formation optical system, characterized by comprising, in order from an object side thereof, an aperture stop, a first positive meniscus lens that is convex on an image side thereof, a second negative lens and a third positive lens, wherein there are a total of three lens elements, with satisfaction of the following condition:

$$0.1<f_1/f<0.55 \quad \ldots (31)$$

where f_1 is a focal length of the first positive lens, and f is a focal length of the image-formation optical system.

28. An image-formation optical system, characterized by comprising, in order from an object side thereof, an aperture stop, a first positive meniscus lens that is convex on an image side thereof, a second negative lens and a third positive lens, wherein there are a total of three lens elements, with satisfaction of the following condition:

$$1.0<(r_{1f}+r_{1r})/(r_{1f}-r_{1r})<1.7 \quad \ldots (32)$$

where r_{1f} is an axial radius of curvature of an object side-surface of the first positive lens, and r_{1r} is an axial radius of curvature of an image side-surface of the first positive lens.

29. An image-formation optical system,

characterized by comprising, in order from an object side thereof, an aperture stop, a first positive meniscus lens that is convex on an image side thereof, a second negative lens and a third positive lens, wherein there are a total of three lens elements, with satisfaction of the following condition:

$$1.0<f_{1\text{-}2}/f<4.0 \quad \ldots (34)$$

where $f_{1\text{-}2}$ is a composite focal length of the first positive lens and the second negative lens, and f is a focal length of the image-formation optical system.

30. An image-formation optical system, characterized by comprising, in order from an object side thereof, an aperture stop, a first positive meniscus lens that is convex on an image side thereof, a second negative lens and a third positive lens, wherein there are a total of three lens elements, with satisfaction of the following condition:

$$-0.25<r_{2r}/r_{1f}<-0.01 \quad \ldots (36)$$

where r_{2r} is an axial radius of curvature of an image side-surface of the second negative lens, and r_{1f} is an axial radius of curvature of an object side-surface of the first positive lens.

31. An imaging system, characterized by comprising an image-formation optical system comprising, in order from an object side thereof, an aperture stop, a first positive meniscus lens that is convex on an image side thereof, a second negative lens and a third positive lens,

and an image pickup device located on an image side of the image-formation optical system, wherein said image-formation optical system comprises a total of three lens elements, and said aperture stop has an aperture of fixed shape through which an optical axis of the image-formation optical system passes, and a rim surface of the aperture is inclined down at an angle of inclination greater than an angle of incidence of a farthest off-axis light beam in such a way as to come closer to the optical axis on an image plane side thereof.

32. An imaging system, characterized by comprising an image-formation optical system comprising, in order from an object side thereof, an aperture stop, a first positive meniscus lens that is convex on an image side thereof, a second negative lens and a third positive lens, and an image pickup device located on an image side of the image-formation optical system, wherein said image-formation optical system comprises a total of three lens element, and there is provided a lens barrel for holding said image-formation optical system and said image pickup device, wherein said lens barrel is integrally molded of the same resin material of which said aperture stop is formed.

33. An imaging system, characterized by comprising an image-formation optical system comprising, in order from an object side thereof, an aperture stop, a first positive meniscus lens that is convex on an image side

thereof, a second negative lens and a third positive lens, and an image pickup device located on an image side of the image-formation optical system, wherein said image-formation optical system comprises a total of three lens elements, and there is provided a lens barrel for holding said image-formation optical system, wherein a rim of each of at least the first positive lens and the third positive lens is inclined down in such a way as to come closer to an optical axis of the image-formation optical system on an object side thereof, and an inclined rim is in engagement with said lens barrel.

34. An imaging system, characterized by comprising an image-formation optical system comprising, in order from an object side thereof, an aperture stop, a first positive meniscus lens that is convex on an image side thereof, a second negative lens and a third positive lens, and an image pickup device located on an image side of the image-formation optical system, wherein said image-formation optical system comprises a total of three lens elements, and there is a lens barrel for holding said image-formation optical system, wherein as viewed from an entrance side of the image-formation optical system, said first positive lens looks as a circle and, as viewed from the entrance side, said third positive lens is in such a shape that a length of a direction corresponding to a short-side direction of an effective image pickup area of the image pickup device is shorter than a length of a

direction corresponding to a long-side direction of the image pickup area.

35. An image-formation optical system, characterized by comprising, in order from an object side thereof, an aperture stop, a first positive meniscus lens that is convex on an image side thereof, a second negative lens and a third positive lens, wherein there are a total of three lens elements, with satisfaction of the following condition:

$$-0.55<f_2/f_3<-0.1 \quad \ldots (41)$$

where f_2 is a focal length of the second negative lens, and f_3 is a focal length of the third positive lens.

36. An image-formation optical system, characterized by comprising, in order from an object side thereof, an aperture stop, a first positive meniscus lens that is convex on an image side thereof, a second negative lens and a third positive lens, wherein there are a total of three lens elements, with satisfaction of the following conditions:

$$-2.0<(r_{3f}+r_{3r})/(r_{3f}-r_{3r})<0.85 \quad \ldots (42)$$

$$0.1<\beta_3<1.0 \quad \ldots (43)$$

where r_{3f} is an axial radius of curvature of an object side-surface of the third positive lens, r_{3r} is an axial radius of curvature of an image side-surface of the third positive lens, and β_3 is a transverse magnification of the third positive lens.

37. An image-formation optical system,

characterized by comprising, in order from an object side thereof, an aperture stop, a first positive meniscus lens that is convex on an image side thereof, a second negative lens and a third positive lens, wherein there are a total of three lens elements, with satisfaction of the following condition:

$$-0.8<(r_{3f}+r_{3r})/(r_{3f}-r_{3r})<0.15 \quad \ldots (42\text{-}6)$$

where r_{3f} is an axial radius of curvature of an object side-surface of the third positive lens, and r_{3r} is an axial radius of curvature of an image side-surface of the third positive lens.

38. An image-formation optical system, characterized by comprising, in order from an object side thereof, an aperture stop, a first positive meniscus lens that is convex on an image side thereof, a second negative lens and a third positive lens, wherein there are a total of three lens elements, with satisfaction of the following condition:

$$0.1<r_{2r}/r_{3f}<0.23 \quad \ldots (44\text{-}3)$$

where r_{2r} is an axial radius of curvature of an image side-surface of the second negative lens, and r_{3f} is an axial radius of curvature of an object side-surface of the third positive lens.

39. An image-formation optical system, characterized by comprising, in order from an object side thereof, an aperture stop, a first positive meniscus lens that is convex on an image side thereof, a second negative

lens and a third positive lens, wherein there are a total of three lens elements, with satisfaction of the following condition:

$$-0.15<r_{1r}/r_{3r}<0.35 \quad \ldots (45\text{-}2)$$

where r_{1r} is an axial radius of curvature of an image side-surface of the first positive lens, and r_{3r} is an axial radius of curvature of an image side-surface of the third positive lens.

40. An image-formation optical system, characterized by comprising, in order from an object side thereof, an aperture stop, a first positive lens, a second negative lens and a third positive meniscus lens that is convex on an object side thereof, wherein there are a total of three lens elements.

41. An imaging system, characterized by comprising an image-formation optical system comprising, in order from an object side thereof, an aperture stop, a first positive meniscus lens that is convex on an image side thereof, a second negative lens and a third positive lens, and an image pickup device located on an image side of the image-formation optical system, wherein said image-formation optical system comprises a total of three lens elements, and said aperture stop has an aperture of fixed shape through which an optical axis of the image-formation optical system passes, and a rim surface of the aperture is inclined down at an angle of inclination greater than an angle of incidence of a farthest off-axis light beam in

such a way as to come closer to the optical axis on an image plane side thereof.

42. An imaging system, characterized by comprising an image-formation optical system comprising, in order from an object side thereof, an aperture stop, a first positive meniscus lens that is convex on an image side thereof, a second negative lens and a third positive lens, and an image pickup device located on an image side of the image-formation optical system, wherein said image-formation optical system comprises a total of three lens elements, and there is provided a lens barrel for holding said image-formation optical system and said image pickup device, wherein said lens barrel is integrally molded of the same resin material of which said aperture stop is formed.

43. An imaging system, characterized by comprising an image-formation optical system comprising, in order from an object side thereof, an aperture stop, a first positive meniscus lens that is convex on an image side thereof, a second negative lens and a third positive lens, and an image pickup device located on an image side of the image-formation optical system, wherein said image-formation optical system comprises a total of three lens elements, and there is provided a lens barrel for holding said image-formation optical system, wherein a rim of each of at least the first positive lens and the third positive lens is inclined down in such a way as to come closer to

an optical axis of the image-formation optical system on an object side thereof, and an inclined rim is in engagement with said lens barrel.

44. An imaging system, characterized by comprising an image-formation optical system comprising, in order from an object side thereof, an aperture stop, a first positive meniscus lens that is convex on an image side thereof, a second negative lens and a third positive lens, and an image pickup device located on an image side of the image-formation optical system, wherein said image-formation optical system comprises a total of three lens elements, and there is a lens barrel for holding said image-formation optical system, wherein as viewed from an entrance side of the image-formation optical system, said first positive lens looks as a circle and, as viewed from the entrance side, said third positive lens is in such a shape that a length of a direction corresponding to a short-side direction of an effective image pickup area of the image pickup device is shorter than a length of a direction corresponding to a long-side direction of the image pickup area.

45. An image-formation optical system, characterized by comprising, in order from an object side thereof, an aperture stop, a first positive meniscus lens that is convex on an image side thereof, a second negative meniscus lens that is convex on an object side thereof and a third positive lens, wherein there are a total of three

lens elements, with satisfaction of the following conditions:

$$-0.35<r_{1r}/r_{2f}<-0.08 \quad \ldots (61)$$

$$-1.5<r_{1r}/r_{2r}<-0.75 \quad \ldots (62)$$

where r_{1r} is an axial radius of curvature of an image side-surface of the first positive lens, r_{2f} is an axial radius of curvature of an object side-surface of the second negative lens, and r_{2r} is an axial radius of curvature of an image side-surface of the second negative lens.

46. An image-formation optical system, characterized by comprising, in order from an object side thereof, an aperture stop, a first positive lens, a second negative meniscus lens that is convex on an object side thereof and a third positive lens, wherein there are a total of three lens elements, with satisfaction of the following condition:

$$0.2<r_{2f}/r_{3f}<3.5 \quad \ldots (63)$$

where r_{2f} is an axial radius of curvature of an object side-surface of the second negative lens, and r_{3f} is an axial radius of curvature of an object side-surface of the third positive lens.

47. An imaging system, characterized by comprising an image-formation optical system comprising, in order from an object side thereof, an aperture stop, a first positive lens that is convex on an image side thereof, a second negative lens and a third positive lens, and an

image pickup device located on an image side of the image-formation optical system, wherein said image-formation optical system comprises a total of three lens elements, and said aperture stop has an aperture of fixed shape through which an optical axis of the image-formation optical system passes, and a rim surface of the aperture is inclined down at an angle of inclination greater than an angle of incidence of a farthest off-axis light beam in such a way as to come closer to the optical axis on an image plane side thereof.

48. An imaging system, characterized by comprising an image-formation optical system comprising, in order from an object side thereof, an aperture stop, a first positive lens that is convex on an image side thereof, a second negative lens and a third positive lens, and an image pickup device located on an image side of the image-formation optical system, wherein said image-formation optical system comprises a total of three lens element, and there is provided a lens barrel for holding said image-formation optical system and said image pickup device, wherein said lens barrel is integrally molded of the same resin material of which said aperture stop is formed.

49. An imaging system, characterized by comprising an image-formation optical system comprising, in order from an object side thereof, an aperture stop, a first positive lens that is convex on an image side thereof, a

second negative lens and a third positive lens, and an image pickup device located on an image side of the image-formation optical system, wherein said image-formation optical system comprises a total of three lens elements, and there is provided a lens barrel for holding said image-formation optical system, wherein a rim of each of at least the first positive lens and the third positive lens is inclined down in such a way as to come closer to an optical axis of the image-formation optical system on an object side thereof, and an inclined rim is in engagement with said lens barrel.

50. An imaging system, characterized by comprising an image-formation optical system comprising, in order from an object side thereof, an aperture stop, a first positive lens that is convex on an image side thereof, a second negative lens and a third positive lens, and an image pickup device located on an image side of the image-formation optical system, wherein said image-formation optical system comprises a total of three lens elements, and there is a lens barrel for holding said image-formation optical system, wherein as viewed from an entrance side of the image-formation optical system, said first positive lens looks as a circle and, as viewed from the entrance side, said third positive lens is in such a shape that a length of a direction corresponding to a short-side direction of an effective image pickup area of the image pickup device is shorter than a length of a

direction corresponding to a long-side direction of the image pickup area.